

## Habitat Areas of Particular Concern (HAPC) Proposal

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Please check applicable box (es):
<input type="checkbox"/> GOA Groundfish FMP
<input checked="" type="checkbox"/> BSAI Groundfish FMP
<input checked="" type="checkbox"/> Scallop FMP
<input checked="" type="checkbox"/> BSAI Crab FMP
<input type="checkbox"/> Salmon FMP

Date: January 2004

### Title and Brief Statement of Proposal:

#### **Adak Canyon Habitat Area of Particular Concern**

In July 2002, researchers with the Alaska Fisheries Science Center (AFSC) conducted a study of shortraker (*Sebastes borealis*) and rougheye (*Sebastes aleutianus*) rockfish in Adak Canyon, located off the southwestern end of Adak Island, Alaska (Reuter and Spencer 2002). Researchers documented a diversity of habitat types including sandy areas and steep rocky outcroppings with living habitat features such as high relief corals and sponge. Also documented were adult and juvenile life stages of rougheye rockfish, shortraker rockfish and shortspine thornyheads (*Sebastolobus alascanus*). The sensitive habitat features in Adak canyon and the importance of this area to a diversity of rockfish species make this area a prime candidate for designation as a Habitat Area of Particular Concern.

### Objectives of Proposal:

The objective of this proposal is to provide for the lasting protection and conservation of long-lived rockfish species and coral within Adak Canyon.

### Statement of Purpose and Need:

Many species of rockfishes are slow growing, long-lived, and relatively old at maturity. These life-history traits make them particularly vulnerable to overfishing. Off Alaska, rougheye rockfish are mature at about 20 years of age and have been documented to reach the age of 205 years (Love 2002). Scientist at the AFSC have indicated that if quotas for rougheye and shortraker rockfish were applied to smaller areas that more closely matched the actual distribution of the species, the commercial catch would have exceeded the allowable biological catch and overfishing levels in both the Bering Sea and Aleutian Islands numerous times in recent years (NPFMC 2002). High volumes of rockfish are caught and discarded in both longline and bottom trawl fisheries throughout the Bering Sea and Aleutian Island management areas (see rockfish bycatch graphs attached).

In addition to concerns about rockfish populations, concerns about cold-water corals run equally as high. Cold-water corals can be extremely long-lived, they create structurally complex habitats and are areas of high taxonomic diversity. Researchers have

documented that Alaska cold-water corals provide important habitat features for both commercial and non-commercial species (Krieger and Wing 2002). Corals are also highly vulnerable to fishing impacts. An average of 40 metric tons of corals were taken as bycatch in the Bering Sea and Aleutian Island bottom trawl fisheries annually between 1997 and 1999 (NMFS 2003a). While significantly less than in the bottom trawl fisheries, longline fisheries in the BSAI accounted for an average of three metric tons of coral bycatch during 1997 – 2001 (NMFS 2003a).

Designating and protecting Habitat Areas of Particular Concern is a valuable way to assist in the conservation of rockfish and coral. Adak Canyon is an exemplary candidate for such designation because of the ecological importance of this area and its integrity as a relatively undisturbed habitat. Maintaining the integrity of habitat features in Adak Canyon will be a positive step towards rockfish and coral conservation.

A description of how the proposed HAPC addresses the four considerations set out in the final EFH regulations:

Importance of the ecological function provided by the habitat:

Although few *in situ* observations have been made of deepwater corals, researchers are beginning to understand their ecological significance. Research in the Gulf of Alaska documented multiple rockfish species, shrimp, and crab in close association with *Primnoa* coral (Krieger and Wing 2002). The structure and color of corals likely provide juvenile rockfish protection from predators, while adult rockfish may associate with corals for feeding. Shrimp – often associated with corals for protection - is a main prey for shortraker and rougheye rockfish (Krieger and Wing 2002). In Adak canyon, researchers using a manned submersible in Adak canyon documented a diversity of invertebrates including high-relief corals and sponge. Research of another submarine canyon, indicates that the complex features provided by submarine canyons provide a valuable habitat refuge for rockfish (Yoklavich 2000). In the paper “Habitat associations of deep-water rockfishes in a submarine canyon: an example of a natural refuge”, the authors determined that higher numbers of large rockfishes were locally associated with complex habitat features having little or no evidence of fishing activity (Yoklavich 2000).

Extent to which the habitat is sensitive to human-induced environmental degradation:

Deepwater corals found off Alaska, especially of the order Gorgonacea, are long-lived (>500 years) and slow growing animals (Witherell and Coon 2000). Given their size and longevity, gorgonian corals may be the most sensitive to fishing impacts. Bottom trawls have been documented to have the greatest impact on coral habitats in the North Pacific region but both longlines and pots have some degree of impact as well (NMFS 2003a).

When describing longline impacts to coral, Krieger and Wing (2002) noted that, “*Primnoa* and other coral species were caught during the sablefish longline survey in the GOA and Aleutian Islands in 1998 at depths of 150-900m (NMFS sablefish long-line

database, Alaska Fisheries Science Center, Auke Bay, Alaska)”. During submersible dives in the Aleutian Islands, researchers observed a site where corals had been damaged by pot gear (Bob Stone, NOAA Fisheries, personal communication). Research in Alaska demonstrates that corals not brought to the surface by fishing gear may still be damaged. Broken corals remaining on the seafloor and colonies that are tipped over have increased susceptibility to predation and polyps may die because they are no longer oriented with the current, rendering them unable to feed (Krieger 2001). Other observations indicate that small coral colonies may be pulled over when snagged by longline gear but unless broken or lifted off the bottom, they may be unharmed and reorient into the current (Krieger 2001).

Whether, and to what extent development activities are, or will be, stressing the habitat type:

Fishing effort distribution maps indicate that vessels using bottom trawls and groundfish vessels using pots do not fish this area. However, vessels using longlines have fished the canyon in recent years (see attached maps). One 25km<sup>2</sup> area within the proposed HAPC has received relatively high longline effort. Other areas within the proposed HAPC at depths approximately less than 500 fathoms, have received low to medium longline effort. Although the available data is coarse, it appears that there is little longline effort inside the proposed area deeper than 500 fathoms. Researchers in the manned submersible noticed some derelict longline gear during submersible transects in the canyon (R. Reuter, NOAA Fisheries, personal communication).

Most of the area of the proposed HAPC falls within state statistical areas 775100 and 775131. Brown crab delivered from statistical areas 775100 and 775131 from 1995 – 2002 totaled 537,060 lbs (ADF&G 2002). This catch represents about 1% of all brown crab catch reported under the confidentiality rules for this time period (ADF&G 2002). If less than three permits or less than three vessels delivered crab from a stat area, the poundage delivered is confidential. If the total catch were reported for all statistical areas, the percentage caught in these two statistical areas would be less than 1% of the total harvest in the last seven years. State statistical area 775139 directly off Cape Yakak showed no reported brown crab catch from 1995 through 2002.

Personal communications with fishermen and representatives indicate that one or two vessels fish brown crab in this area on an intermittent basis but it has not been an area of high importance to the fishery in recent years. An analysis of this proposal should include more detailed crab fishing effort inside the proposed area to better understand the importance of the area to the brown crab fishery and the footprint that the fishery has had in the proposed area.

Rarity of the habitat:

The complex physical and biological habitat features in this submarine canyon, including steep canyon walls, boulders and high relief corals make the Adak Canyon a rare habitat area. On the North Pacific side of the Aleutians, there are only six similar submarine

canyons to the west of Adak, including Murray Canyon, Heck Canyon, Agutta Canyon, Abraham Canyon, Etienne Canyon and Stalemate Canyon (NOAA Chart INT 813/ 513). Two other canyons, Rat Island Canyon and Tahoma Canyon have much less complex physical features. Rock outcrops of high relief, steep canyon walls, coral, sponge and sandy areas make this submarine canyon a more complex habitat area than nearby shelf habitat.

Proposed management measures and their specific objectives:

Cooperative Research Special Management Unit.

After designation of the proposed area as a habitat area of particular concern, vessels using longlines targeting groundfish and vessels using pots, targeting crab, could apply to enter into cooperative research with the National Marine Fisheries Service as a condition of fishing inside the HAPC. Cooperative research would be designed to increase biological data on the canyon and/or conducting fishing impact research by longlines and pots. Observer coverage, VMS, video documentation of the seafloor and other data collection tools would be potential components to a useful research endeavor.

This management measure would allow baseline levels of commercial harvest (no net increase of recent fishing effort inside the area) while increasing biological, physical and fishery data. Based on the results of cooperative research efforts, adaptive management measures could be applied to ensure that the objectives of the proposed HAPC are met while allowing for some levels of commercial harvest in the area.

Proposed solutions to achieve these objectives: (how might the problem be solved)  
Include concepts of methods of measuring progress towards those objectives:

Cooperative research by vessels using longlines and pots would allow for some levels of commercial fishing inside the Adak Canyon HAPC. The cooperative research special management unit would provide an opportunity to increase data on fishing impacts to coral habitat and rockfish. Because some commercial fishing would still be occurring inside the HAPC, there would likely be some incidental take of sensitive habitat features such as coral, sponge and other seafloor organisms. However, since the habitat features are inherently patchy, studies could be designed to minimize impacts to coral and rockfish. Habitat mapping, submersible and ROV studies could further elucidate biological and physical information in the canyon.

Identification of the fisheries, sector, stakeholders and communities to be affected by the establishment of the proposed HAPC (Who benefits from the proposal and who would it harm?) and any information you can provide on socioeconomic costs, including catch data from the proposed area over the last five years:

Because of the relatively small scale of the proposed Adak Canyon HAPC our intent is that its impact on fishing opportunity will be minimal. There may be some short-term costs to specific vessels that fish the Adak canyon if they choose not to enter into

cooperative research. At this time that information is unknown. A formal analysis should and will be conducted before any HAPC is implemented that will assess potential economic loss. Additional analysis is needed on the importance of the Adak canyon to groundfish and crab fisheries.

Cooperative research programs provide a unique opportunity for those interested in fisheries to collectively resolve complex issues. Participants nationwide increasingly recognize the benefits that can accrue from cooperative research efforts. However, research will involve costs. The Adak Canyon HAPC is a place that cooperative research funding could apply to offset costs associated with research design and implementation.

Attached are maps showing the approximate location of the proposed HAPC with observed longline, groundfish pot, and bottom trawl effort from 1998-2002. Maps of crab pot effort were not available at the time of this proposal.

Clear geographic delineation for proposed HAPC (example written latitude and longitude reference points and/or delineation on an appropriately scaled NOAA chart):

-177.0000, 51.6500  
-177.1400, 51.3300  
-177.1400, 51.6500  
-177.0000, 51.3300

See attached maps.

Provide best available information and sources of such information to support the objectives for the proposed HAPC. (Citations for common information or copies of uncommon information):

ADF&G 2002. Alaska Department of Fish and Game Commercial Fisheries Crab Harvest database. 2002 Query.

Krieger, K.J., 2001. Coral (*Primnoa*) impacted by fishing gear in the Gulf of Alaska. In J.H. Martin Willison et al (eds.) Proceedings of the First International Symposium on Deep-Sea Corals, Ecology Action Center and Nova Scotia Museum, Halifax, Canada.

Krieger, K.J., and B.L. Wing. 2002. Megafauna associations with deepwater corals (*Primnoa* spp.) in the Gulf of Alaska. *Hydrobiologia* 471: 83-90.

Love, M.S., M. Yoklavich, and L. Thorsteinson. 2002. The Rockfishes of the Northeast Pacific. University of California Press. Berkeley and Los Angeles, California.

NMFS 2003a. Alaska Groundfish Fisheries Draft Programmatic Supplemental Environmental Impact Statement. Appendix A-T-231, A-T-535.

NPFMC 2002. Stock Assessment and Fishery Evaluation Report For the Groundfish Resources of the Bering Sea/ Aleutian Island Region. Pgs 574-575.

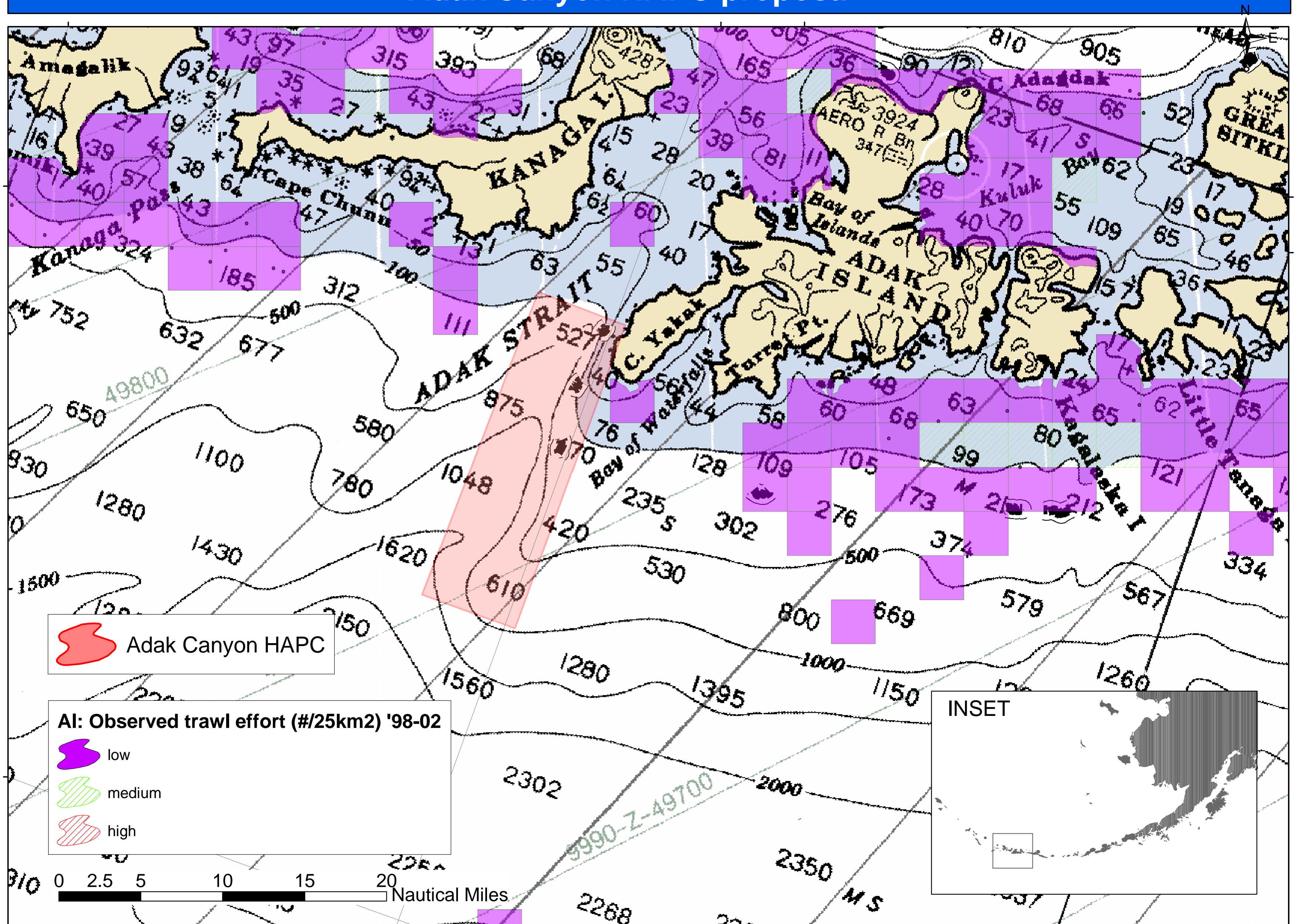
NRC. 2002. Effects of Trawling and Dredging on Seafloor Habitat. National Research Council. National Academy Press, Washington D.C. March 2002.

Reuter, R.F. and P.D. Spencer. 2002. Adak Island Rockfish Submersible Study. Alaska Fisheries Science Center Quarterly Reports, July –September 2002.

Witherell, D., and C. Coon. 2000. Protecting Gorgonian Corals off Alaska from Fishing Impacts. Proceedings of the Nova Scotian Institute of Science; First International Symposium on Deep Sea Corals; 117-115. Nova Scotia Museum, Halifax, Canada.

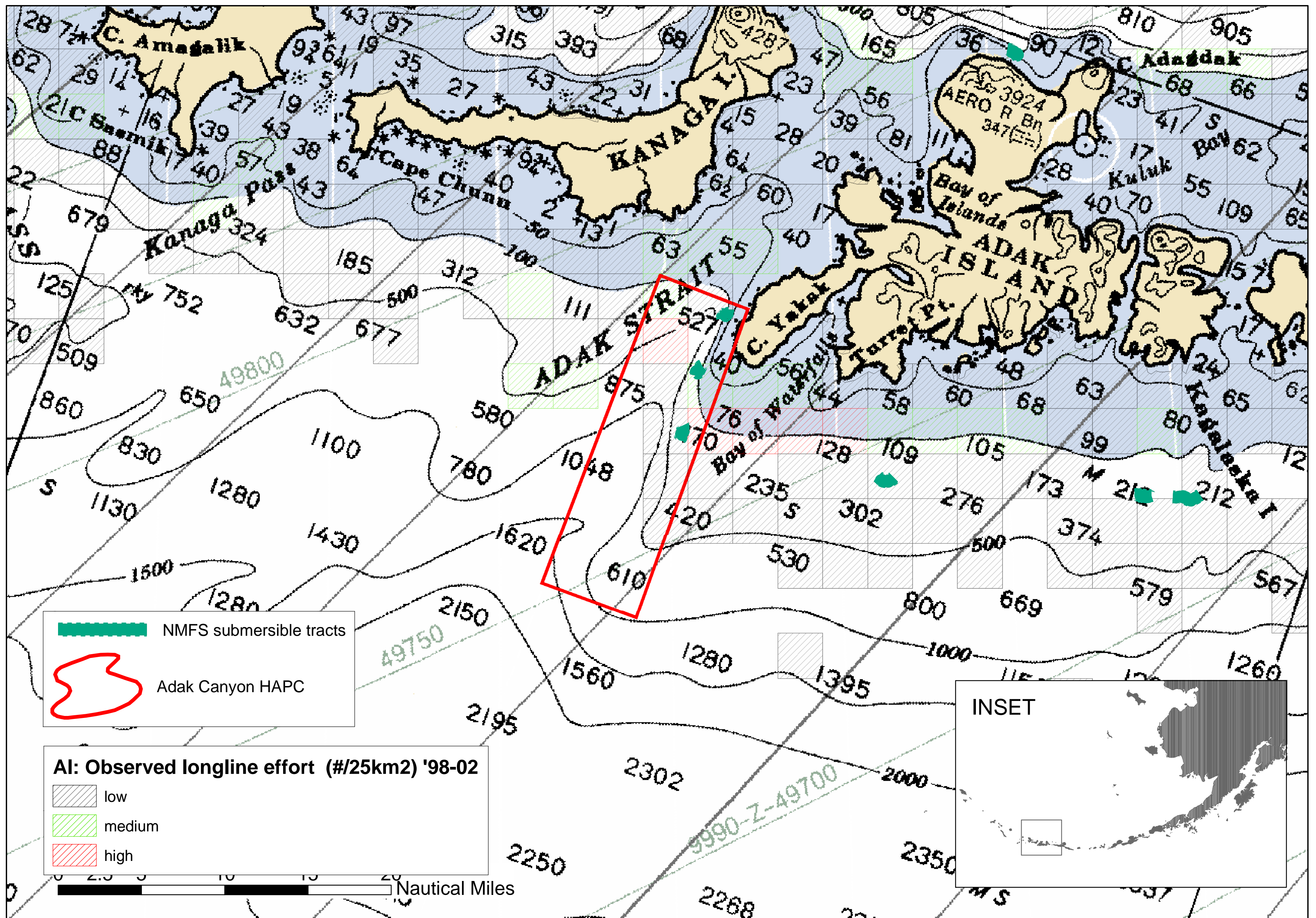
Yoklavich, M.M., H.G. Greene, G.M. Cailliet, D.E. Sullivan, R.N. Lea, and M.S. Love. 2000. Habitat associations of deep-water rockfishes in a submarine canyon: an example of a natural refuge. Fisheries Bulletin 98:625-641.

# Adak Canyon HAPC proposal



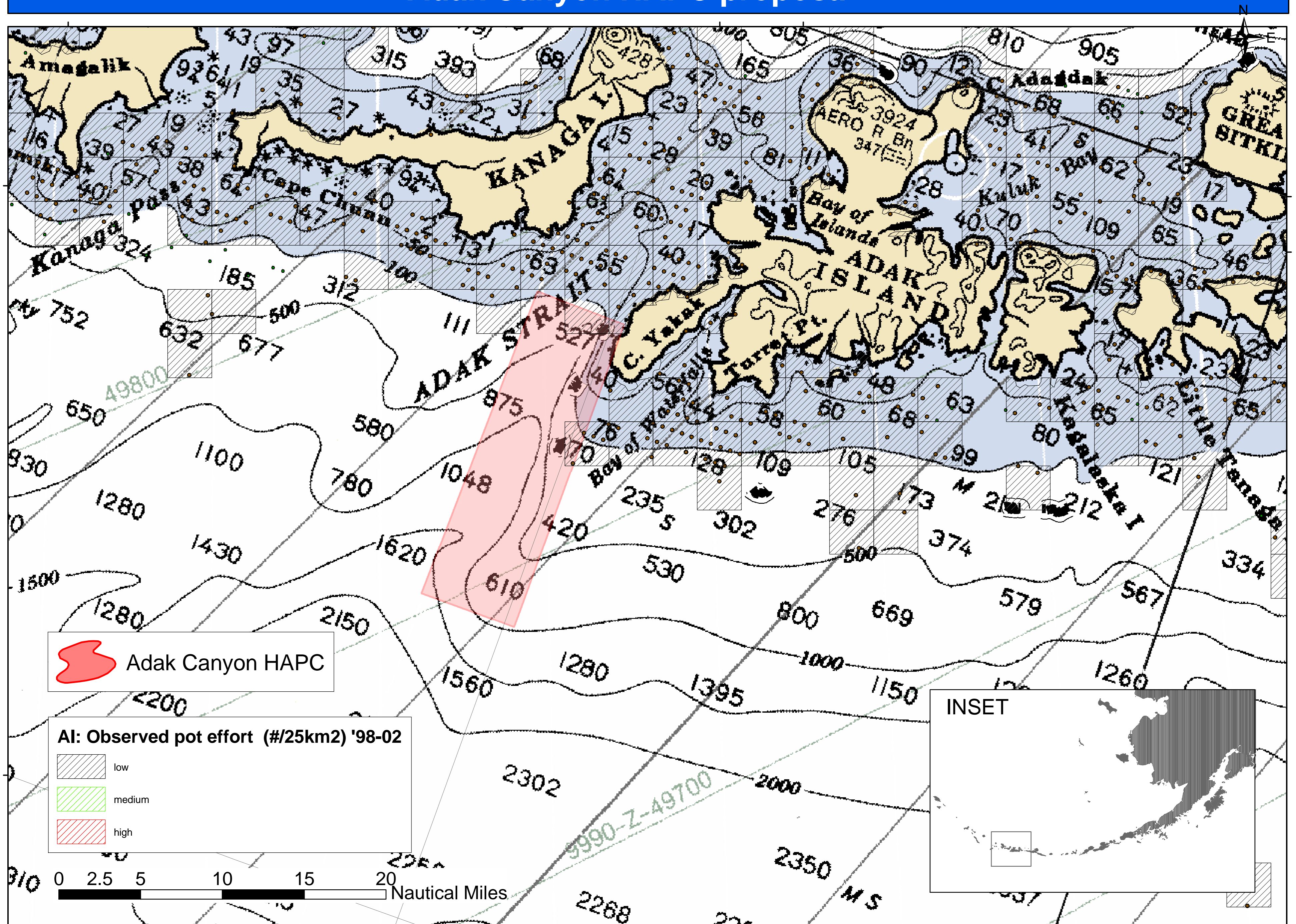


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**Figures 1 – 4. Bering Sea and Aleutian Island Rockfish Bycatch**

Figure 1.

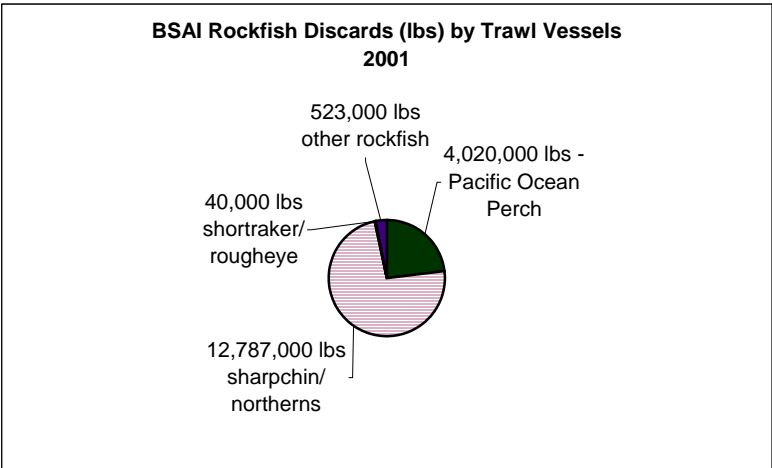


Figure 2.

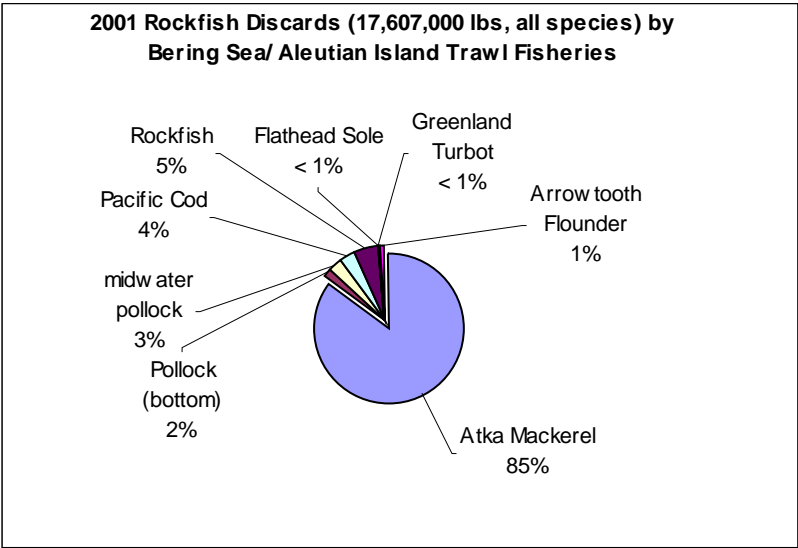


Figure 3.

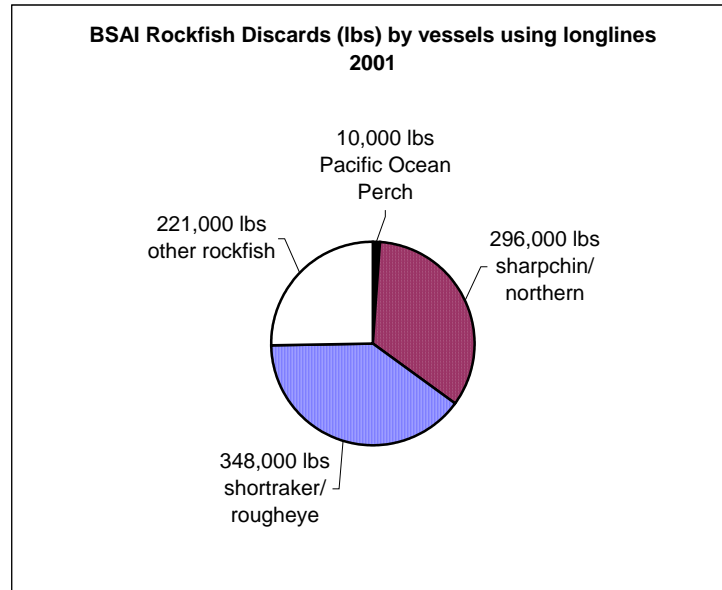
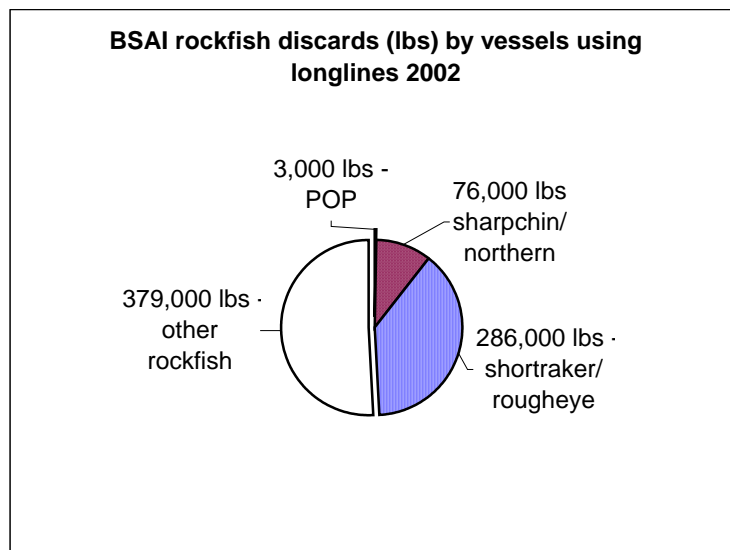


Figure 4.



Source:

AMCC 2003. Discards in the North Pacific Groundfish Fisheries, 2001. Alaska Marine Conservation Council, Anchorage, AK.

AMCC 2003. Discards in the North Pacific Groundfish Fisheries, 2002. Alaska Marine Conservation Council, Anchorage, AK.